TR2 QFan Series

ATX 12V 2.3 Version

Patent Design
M314373

Thermaltake
COOL YOUR LIFE

R32317 E303666 Tested to Comply With FCC Standards FOR HOME OR OFFICE USE

User's Manual >>

Thermaltake TR2 QFan Power Supply

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TR2 QFan PSU >> >>
ATX12V 2.3 Version

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Thermaltake TR2 QFan Supply

1. Introduction

We live up to the promise of Thermaltake logo in our unending quest for excellence.
Shall you have any suggestion or comments, please access our web site :
http://www.thermaltake.com
http://www.tr2tt.com
or e-mail to :
thermaltake@thermaltake.com
sales.tr@tr2tt.com
we appreciate your kindly feedback and you will receive the prompt response from our customer service team.

Thank you for choosing a quality Thermaltake TR2 QFan PC Power Supply. We trust that you will find it providing you with many years of service.

You can always find a Thermaltake TR2 QFan PC Power Supply that is suitable for all of your modern PC power needs.

Please take the time in familiarize yourself with the power supply, its connectors and the contents of this manual before proceeding with the installation of the power unit. You will need a Phillips crosshead screwdriver, perhaps your PC case manual and most certainly your motherboard manual.

2. Components Check

1 TR2 QFan power supply unit

7 One AC Input power cord

7 4 mounting screws

7 User manual

3 Installation

3.1 Warnings and Cautions

3.1.1 Do not pull the AC power cord when the power supply is in use or else damage to components will result.

3.1.2 Do not store the Power Supply in a high humidity and high temperature environment.

3.1.3 When using TR2 QFan power supply under testing conditions where the power supply unit is not installed in a PC with its components, please follow the steps below:
1)Please take a paper clip and untwist it.
2)Make sure the power supply unit is in the "OFF" position.
3)Locate the 20 or 24 pin motherboard connector from the power supply unit.
4)Plug one side of the paper clip into the green wire hole.
5)Plug the other side of the paper clip into any of the black wire holes.
6)Turn on the PSU to see if the power supply fans turn on.

3.1.4 High voltages exist in the power supply. Do not open the power supply case unless you are an authorized service technician or electrician.

3.1.5 All warrantees and guarantees shall be voided should there be a failure to comply with any of the warnings and cautions covered in this manual.

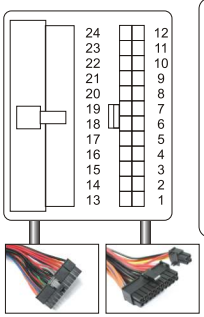
3.2 Installation Steps

3.2.1 Disconnect the power cord from your old power supply.
3.2.2 Follow your computer case manual and disassemble the case.
3.2.3 Disconnect all the power connectors from the motherboard and from the peripheral devices such as case fans, hard drives, floppy drives. etc.
3.2.4 Remove the existing power supply from your computer case and replace it with your new Thermaltake TR2 QFan PSU.
3.2.5 Connect the power connectors to the motherboard and peripheral devices (refer to the rest of this manual to match the various one-way key-locked connectors to the motherboard and accessories).
3.2.6 Connect the 6pin PCI-E connector to PCI Express graphic card if you need.
Note: Please read the user manual supplied with your graphic card for detail usage instructions.
3.2.7 Close the computer case.
3.2.8 Make sure your power supply switch is on "OFF" position, and connect the supplied power cord to your Thermaltake TR2 QFan PSU.

4. Product Specification

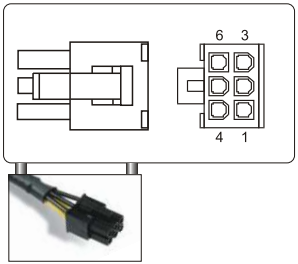
4.1 Output Specification

Main Power Connector



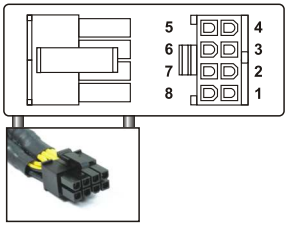
Voltage	Color			Color	Voltage
+3.3 V	Orange	1	13	Orange	+3.3 V
+3.3 V	Orange	2	14	Blue	-12 V
COM	Black	3	15	Black	COM
+5 V	Red	4	16	Green	PS_ON#
COM	Black	5	17	Black	COM
+5 V	Red	6	18	Black	COM
COM	Black	7	19	Black	COM
PWR_ON	Gray	8	20	N/C	N/C
+5 Vsb	Purple	9	21	Red	+5 V
+12 V	Yellow	10	22	Red	+5 V
+12 V	Yellow	11	23	Red	+5 V
+3.3 V	Orange	12	24	Black	COM

PCI-E Connector (6 pin)



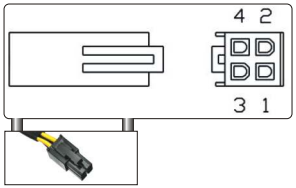
Color	Signal	Pin
Yellow	+12V	1
Yellow	+12V	2
Yellow	+12V	3
Black	COM	4
Black	COM	5
Black	COM	6

CPU Connector (8 pin) *(only in W0194 - TR2 500W model)*



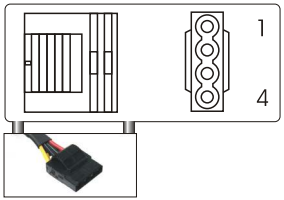
Color	Signal	Pin
Black	COM	1
Black	COM	2
Black	COM	3
Black	COM	4
Yellow	+12V	5
Yellow	+12V	6
Yellow	+12V	7
Yellow	+12V	8

CPU Connector (4 pin)



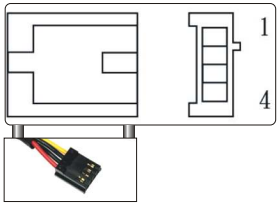
Color	Signal	Pin
Black	COM	1
Black	COM	2
Yellow	+12V	3
Yellow	+12V	4

Peripheral Connector (4 pin)



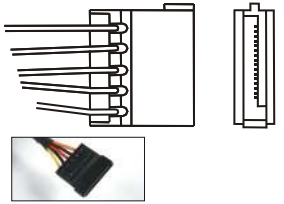
Color	Signal	Pin
Yellow	+12V	1
Black	COM	2
Black	COM	3
Red	+5VDC	4

Floppy Disk Connector (4 pin)



Color	Signal	Pin
Red	+5VDC	1
Black	COM	2
Black	COM	3
Yellow	+12V	4

Serial ATA Power Connector



Color	Signal	Pin
Yellow	+12V	1
Black	COM	2
Red	+5VDC	3
Black	COM	4
Orange	+3.3VDC	5

+12V Rail Distribution

W0190/W0191/W0192/W0193

Connector	+12V1	+12V2
20+4pin Main Power	O	
4 pin CPU Power		O
Peripheral & Floppy	O	
S-ATA	O	
6 pin standard PCI-E	O	

W0194

Connector	+12V1	+12V2
20+4pin Main Power	O	
4 pin CPU Power		O
8 pin CPU Power		O
Peripheral & Floppy	O	
S-ATA	O	
6 pin standard PCI-E	O	

4.2 TR2 QFan PSU Specification

P/N	W0190 / W0191 / W0192 / W0193 / W0194	
SPECIFICATION		
Power	300W / 350W / 400W / 450W / 500W	
Dimension	150mm(L)x160mm(W)x86mm(H)	
PFC	Active PFC (PF > 0.99)	
FAN	140mm QFan, SPEED: 1900 ± 10% RPM AIR FLOW: 93 CFM BEARING TYPE: Two Ball Bearing, Temp. Auto Control	
Noise	17 dBA at 1500 RPM	
P. G. Signal	100-500 ms	
Efficiency	Over 80%	
Hold-up Time	16ms at 80% of full load at 230Vac input	
INPUT		
Input Voltage	100Vac-240Vac	
Input Frequency Range	50/60 Hz	
MTBF	100,000 hrs minimum	
Input Current	300W/350W/400W :115Vac / 5.0A max. 230Vac / 2.5A max. 450W/500W: 115Vac / 6.0A max. 230Vac / 3.0A max.	
ENVIRONMENT		
Operating Temp.	10 ℃ to 40 ℃	
Storage Temp.	-20 ℃ to 70℃	
Operating Humidity	20% to 90%, non-condensing	
Storage Humidity	5% to 95%, non-condensing	
PROTECTION		
Over Voltage Protection	DC rail	Trigger Point/Range
	+3.3V point	7.0 Vmax
	+5.0V point	4.5 Vmax
	+12.0V point	15.6 Vmax
Over Current Protection	+5V output: 17A~32A +3.3V output: 26A~42A 300W: +12V1 & +12v2 output: 16A~32A 350W: +12V1 & +12v2 output: 19A~32A 400W/450W/500W: +12V1 & +12v2 output: 20A~32A	
Over Power Protection	120%~160% of full load	
Short Protection	All output to GND	

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➤ Total Output Connector

	P/N	W0190	W0191	W0192	W0193	W0194
	Wattage	300W	350W	400W	450W	500W
	20+4pin Main Connector	1	1	1	1	1
	4pin +12V CPU Connector	1	1	1	1	1
	8pin +12V CPU Connector	0	0	0	0	1
	6pin PCI-E Connector	1	1	1	1	2
	SATA Connector	2	2	4	4	4
	Peripheral Connector	5	5	5	5	5
	Floppy Connector	1	1	1	1	1

➤ Performance

W0190 300W						
AC INPUT	100-240Vac 5/2.5A 50/60Hz					
DC OUTPUT	+5V	+3.3V	+12V1	+12V2	-12V	+5VSB
Maximum Load	15A	21A	11A	8A	0.3A	3A
Minimum Load	0.5A	0.3A	0.3A	0.5A	0.0A	0.0A
Peak Current	--	--	13A	13A	--	3.5A
The total output power is 300W. The combined power of +5V & +3.3V is 103W max.						

W0191 350W						
AC INPUT	100-240Vac 5/2.5A 50/60Hz					
DC OUTPUT	+5V	+3.3V	+12V1	+12V2	-12V	+5VSB
Maximum Load	15A	21A	11A	14A	0.3A	3A
Minimum Load	0.5A	0.3A	0.3A	0.5A	0.0A	0.0A
Peak Current	--	--	15A	18A	--	3.5A
The total output power is 350W. The combined power of +5V & +3.3V is 103W max.						

W0192 400W						
AC INPUT	100-240Vac 5/2.5A 50/60Hz					
DC OUTPUT	+5V	+3.3V	+12V1	+12V2	-12V	+5VSB
Maximum Load	15A	24A	17A	14A	0.3A	3A
Minimum Load	0.5A	0.3A	0.3A	0.5A	0.0A	0.0A
Peak Current	--	--	--	18A	--	3.5A
The total output power is 400W. The combined power of +5V & +3.3V is 120W max.						

W0193 450W						
AC INPUT	100-240Vac 6/3A 50/60Hz					
DC OUTPUT	+5V	+3.3V	+12V1	+12V2	-12V	+5VSB
Maximum Load	15A	24A	17A	16A	0.3A	3A
Minimum Load	0.5A	0.3A	0.3A	0.5A	0.0A	0.0A
Peak Current	--	--	--	19A	--	3.5A
The total output power is 450W. The combined power of +5V & +3.3V is 120W max.						

W0194 500W						
AC INPUT	100-240Vac 6/3A 50/60Hz					
DC OUTPUT	+5V	+3.3V	+12V1	+12V2	-12V	+5VSB
Maximum Load	15A	24A	18A	18A	0.3A	3A
Minimum Load	0.5A	0.3A	0.3A	0.5A	0.0A	0.0A
Peak Current	--	--	19A	19A	--	3.5A
The total output power is 500W. The combined power of +5V & +3.3V is 130W max.						

4.3 Other Specification

4.3.1 Power Efficiency:

	Rated Load	Light	Typical	Full
W0190 300W	115V Required Minimum Efficiency	81.56%	84.67%	83.32%
	230V Required Minimum Efficiency	82.76%	86.59%	85.81%

	Rated Load	Light	Typical	Full
W0191 350W	115V Required Minimum Efficiency	83.31%	85.40%	83.30%
	230V Required Minimum Efficiency	84.03%	87.34%	85.77%

	Rated Load	Light	Typical	Full
W0192 400W	115V Required Minimum Efficiency	83.73%	85.70%	82.58%
	230V Required Minimum Efficiency	85.35%	87.46%	84.94%

	Rated Load	Light	Typical	Full
W0193 450W	115V Required Minimum Efficiency	83.60%	85.34%	84.60%
	230V Required Minimum Efficiency	85.61%	87.25%	84.60%

	Rated Load	Light	Typical	Full
W0194 500W	115V Required Minimum Efficiency	84.83%	86.09%	82.23%
	230V Required Minimum Efficiency	86.19%	87.74%	84.52%

4.3.2 Hold-Up Time:
16ms at 80% of full load at 230Vac input

4.3.3 Power Good Delay:
100-500 msec.

4.3.4 Power Fail Delay:
>1 msec.

4.3.5 Rise Time:
20ms max at full load.

4.3.6 MTBF at 25°C(demonstrated)
100KHrs minimum

4.4 EMI & Safety

4.4.1 Conducted EMI
- MEET FCC： Class B
- MEET CISPR 22： Class B
- MEET BSMI： Class B

4.4.2 Safety Standards
- MEET CUL (UL 60950)
- MEET TUV EN60950
- MEET CE

5. Trouble Shooting

Condition 1: No DC output. The fan or fans are motionless
Check:
1-1 Is the AC inlet plug firmly plugged into the PSU inlet socket?
1-2 Is the wall socket, extension power cord, power strip or surge protector in use, fully functional and wall power switch turned 'ON'?
1-3 Is the Main Board socket (24pin) plug fully and firmly inserted?

Condition 2: The fan or fans began rotating and then stopped. The system hangs without proceeding any further.
Check:
2-1 Are the peripheral connectors firmly plugged into accessory devices, such as the main hard drive, CD ROM , etc?
2-2 If a plug has been inadvertently connected in an off-set or reversed position, unplug the AC power source, reconnect the offending connectors and then wait for 30 seconds before replug in the AC power source and try again.

Note:
If the power supply is still unable to power up after following the above instruction, please send the unit back to your dealer or retailer for after sales service.

Should you have any questions regarding the aforementioned steps, please contact Thermaltake directly. Failure to follow the proper procedures may cause severe bodily harm or PC component damage.

For Support or General Inquiries, please contact us at:

❶ **Thermaltake Technology USA**
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6.Cable Retail Package(Optional)

P/N:A2169 **PSU Adaptor Cable**

Specification

Model	(A)	(B)
Model	Adaptor Cable	Adaptor Cable
Dimension (mm)	193mm	198mm
Connector type	4pin - 8 pin	20pin - 24 pin
Cable sleeving color	Red	Black
Material	Plastic	Plastic
Weight	16g	58g
Voltage	12V	3.3V,5V, +12v,-12V

(A)4pin-8pin

(B)20pin-24pin

Thermaltake TR2 QFan Supply